

Wireless Leak Monitoring and Detection

PROACTIVELY MONITOR AND DETECT LEAKS ON A WATER NETWORK

Leakage of treated water from distribution networks is a major problem for Water Utilities. Aging assets, severe weather and water hammers result in a constant battle to manage water loss. To address this challenge, Trimble Water now offer a unique family of advanced leak detection capabilities as part of our Trimble Unity solutions.

The solution combines both correlating sensors and cloud software to monitor, detect and analyze leaks. The Telog LDR-32 Leak Detection Recorder hardware combined with the Trimble Unity Leak Manager software provides a clear, accurate and updated picture of the condition and integrity of the water network. The solution informs the user when a leak is starting to develop, giving its exact position, long before any significant damage is caused.

Leak Monitoring and Detection Sensors

The LDR-32 is an easy to install battery operated acoustic sensor, for above and below ground applications. Samples are captured during off-peak hours and are uploaded to the cloud using existing cellular communications for leak correlation. The sensors are plug and play, so no costly radio infrastructure is needed.

The LDR-32 monitors both large and small diameter pipes of both metal and PVC or HDPE materials. The LDR-32 enables detection of very small leaks that cannot be detected by surveys and noise loggers, owing to a proven continuous correlation-based detection method. Early identification of small leaks coupled with a targeted repair program will ensure that such small leaks do not develop into major leaks and ultimate catastrophic main bursts.

Web-based Software

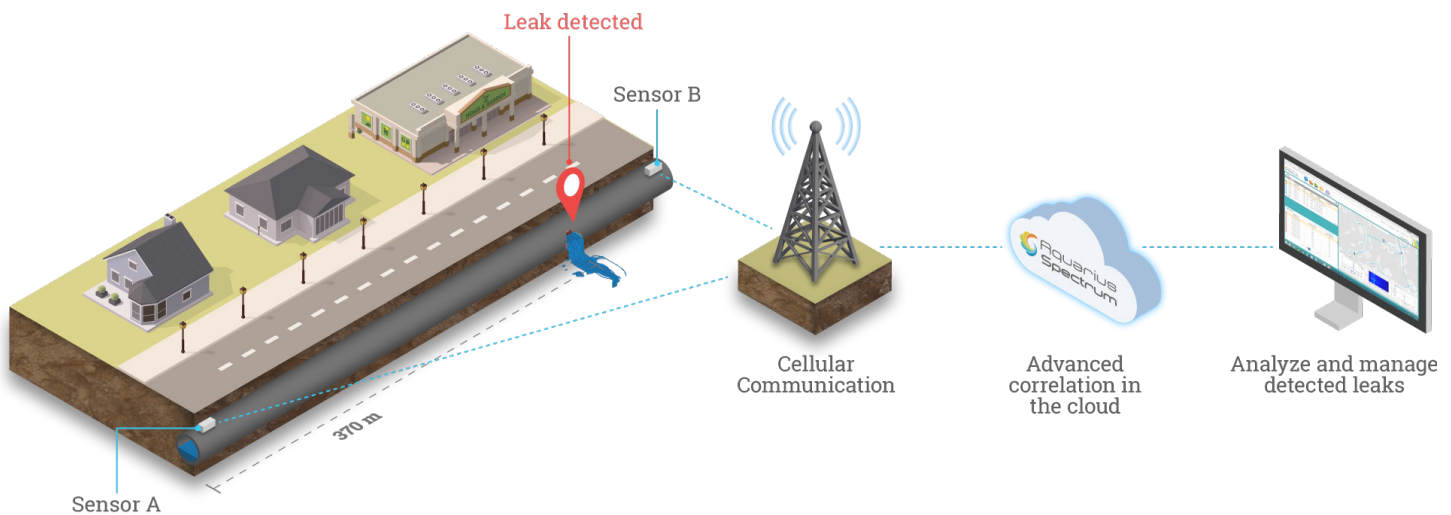
The Trimble Unity LeakManager, an easy to use GIS cloud based software to manage, analyze, visualize leak alerts and prioritize repairs. View and monitor leak intensity and leak development over time to prevent significant loss of service or damages.

Benefits

Don't wait for a main burst or for a leak to surface. Employ the Trimble Unity LeakManger and LDR-32 proactive leak monitoring solution to reduce non-revenue water loss, main bursts, repair and collateral damage costs. Maintain high customer service, reduce outages and water quality issues.

Key Features

- ▶ **Comprehensive Solution.** Includes sensors, communications, intuitive cloud application and services
- ▶ **Cellular based.** Eliminate costly radio infrastructure and provide higher bandwidth for data transfer
- ▶ **Minimize False Positives.** Innovative continuous correlation technology providing authoritative results
- ▶ **Reduce Main Burst & Repair Costs.** Proactively monitor and detect small leaks (1.5mm) in size as they appear before significant damage is caused



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SYSTEM

- Accurate leak detection from 1.5 mm (1/16") hole sizes at 3 bars
- Location accuracy <2% of distance between sensors.
- Sensor sampling 1-3 per day

SENSOR SPECIFICATIONS

- Accelerometer:
 - Frequency range: 1-2000Hz;
 - Sensitivity: <1 micro g
- Hydrophone:
 - Frequency range: 1-2000Hz;
 - Sensitivity: <1 micro Pa;
 - 16 Bar pressure rating
- Dynamic range: 20 Bit
- Communication: 3.5G cellular
- Dimensions: 230x100x60mm (9" x 3.9" x 2.4")
- Water proof: IP 67
- Sensor installation: external installation, clamp on hydrant pipe above the ground
- Temperature range: -20°:60° C (-4°:140° F)
- UV resistant
- Battery provides 5 years of operation
- Internal GPS for timing and location
- Automatic registration using GPS positioning
- Comprehensive self-test upon installation including GPS, 3G and sensor recording

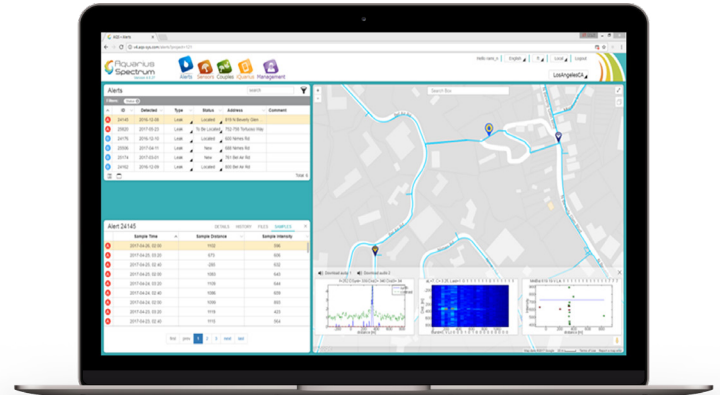


PROCESSING

- Cloud processing
- SaaS operational model
- Multi-sensor correlation-based leak detection
- Automatic adaptive filtering of signals
- Leak intensity estimation
- Automatic interference filtering: irrigation, pumps, PRV, etc
- Statistical analysis and trending of leak development
- Sensor registration via Android App.

WEB BASED DATA INTERFACE

- Tabular and map-based presentation of leaks
- Extensive reporting capabilities
- Leak repair management functions (repair orders, statistics, etc.)



REPRESENTED BY:

CCLYNCH
 & ASSOCIATES
The Water Monitoring People

Phone: 1-800-333-2252
 Fax: 228-452-2563
 info@cclynch.com
 www.cclynch.com

TrimbleWater_ContactUs@trimble.com
 www.trimblewater.com